Ohio Environmental Protection Agency

Division of Surface Water

Application for Authorization
Class B Biosolids Beneficial Use Sites

OhioEPA
Ohio Environmental Protection Agency
Division of Surface Water

Beneficial User Information

Beneficial user: Dovetail Energy, LLC		
Contact person: Bruce Bailey, VP of Technical Affairs		
Mailing address: 5755 Granger Rd. Suite 320		
City: Independence	State: Ohio	Zip: 44131
Telephone number: (216) 986-9999		
Email address: bbailey@quasareg.com		

Certification Statement

I agree to be responsible for complying with all applicable beneficial use requirements established in Chapter 3745-40 of the Ohio Administrative Code.

Signature _____ Date ____/____/____

For purposes of this form, the beneficial user means the person who sprays or spreads Class B biosolids onto the surface of the beneficial use site, injects below the surface of the beneficial use site, or incorporates into the soil of the beneficial use site, for the purpose of providing an agronomic benefit.

Form BUA-2

Owner Consent for Beneficial Use

Exemption 6

Certification Statement

1. I agree to allow biosolids generated by the treatment plant identified on Form BUA-1 to be beneficially used on my property at agronomic rates.

2. I agree to allow federal, state and local regulatory staff access to the beneficial use site for the purposes of inspecting and authorizing the beneficial use site, beneficially using biosolids, and collecting and analyzing samples from the beneficial use site. I reserve the right to ask the above parties for proper identification at any time.

3. I certify that I am holder of legal title to the property described on application form BUA-4, or am authorized by the holder to give consent for the land application of biosolids, and that there are no restrictions to the granting of consent under this form.

Exemption 6 _____ 11 / 25 / 2014
Date

In the event the owner of the beneficial use site changes, Form BUA-2 must be revised and resubmitted to Ohio EPA.

quasar energy group

Form BUA-3

Beneficial Use Site Operator Consent for Beneficial Use

Beneficial use site operator: Pitstick Pork Farms, Inc.		
Mailing address: 1146 Herr Rd		
City: Fairborn	State: OH	Zip: 45324
Telephone number: 937-879-0154		
Email address (if available): tvpitstick@gmail.com		

Certification Statement

I agree to be responsible for complying with all applicable beneficial use requirements established in Chapter 3745-40 of the Ohio Administrative Code.

Tim Pitstick Pres.
Signature

05 / 02 / 15
Date

In the event the operator of the beneficial use site changes, Form BUA-3 must be revised and resubmitted to Ohio EPA.

Beneficial User Information

Beneficial user: Dovetail Energy, LLC		
Contact person: Bruce Bailey, VP of Technical Affairs		
Mailing address: 5755 Granger Rd. Suite 320		
City: Independence	State: Ohio	Zip: 44131
Telephone number: (216) 986-9999		
Email address (if available): Bbailey@quasareg.com		

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N
Horizon Dr
Bluegrass Dr
Hillcrest Dr
Millrace Dr
Dorado Dr
Redbud Dr
Adrian Ct
GRQ-07-01
Rona Pkwy Dr
Timberwyck Ct
McCurdy Ct
Ortego Dr
Ponderosa Ct
Meadow Wood Dr
Marietta Dr
Black Ln
Honeysuckle Dr
Ridgecrest Ct
Yellow Springs Fairfield Rd
Waterford Blvd
Cascade Dr
Artesian Ln
© 2015 Google
1176 ft
Google earth

OhioEPA
Ohio Environmental Protection Agency
Division of Surface Water

Beneficial Use Site Information

Ohio EPA Site I.D. (Ohio EPA Use Only)

Field site I.D.: GRQ-07-01

Beneficial use site location: 0.6 miles W of Black Ln, 0.3 miles N of Yellow Spring Fairfield Rd

County: Greene

Township: Bath

Latitude: 39°49'39.84"N

Longitude: 83°58'42.95"W

Total acreage proposed for beneficial use: 13.4

Type of beneficial use to be performed:

Surface application ☐
Injection or immediate incorporation ■

Ground slope percent:

Less than 15%	■	15% to 19.9%	☐
Greater than 20%	☐		

Soil pH (s.u): 7.8

Bedrock depth (feet): >3ft

Soil phosphorus (mg/kg): 5.0

Bray Kurtz P1 ☐
Mehlich 3 ■

Type of crops to be grown:

Crop Type	Expected Yield
Corn	180 bu/ac
Soybeans	60 bu/ac
Wheat	
Pasture	
Hay	
Other:	

Soil Types:

Soil Unit Symbol	Soil Unit Name	Hydrologic Soil Group	Flooding Frequency Class
EmB	Eldean silt loam, 2-6% slopes	B	None
MUF	Milton soils, channery variant, 25-50% slopes	C	None
Ws	Westland silty clay loam	C/D	None

Applicable isolation distances:

Type of Isolation Distance			
Surface waters of the state	■	Sinkhole/UIC class V drainage	☐
Occupied building	■	Private potable water source	☐
Medical care facility	☐		

Are any endangered species or endangered species habitats located on the beneficial use site?

☐ Yes	■ No

If "Yes" is marked, list the types of endangered species or endangered species habitat:

Have biosolids been beneficially used on the site since July 20, 1993?

☐ Yes	■ No

If "Yes" is marked, list the biosolids generators and years beneficial use occurred:

Generator	NPDES permit No.	Year of Beneficial Use

The application must also include all of the following:

- ■ A soil map of the proposed beneficial use site.
- ■ A frequency flood class map of the proposed beneficial use site.
- ■ An aerial map of the proposed beneficial use site that clearly identifies the entrance of the beneficial use site from the nearest road and all applicable isolation distances as established in Chapter 3745-40 of the Ohio Administrative Code.
- ■ A vicinity road map at or near the township level that clearly identifies the proposed beneficial use site with all roads labeled.
- ■ A copy of the most recent soil test results identified in this form.

quasar energy group

GRQ-07-01
Total Acreage: 13.4 Acres

N

0 150 300 600 Feet

33ft Water Buffer

MtB Soil Exclusion

Care Facility

1500ft Facility Buffer

Residences

100ft Res Buffer

300ft Res Buffer

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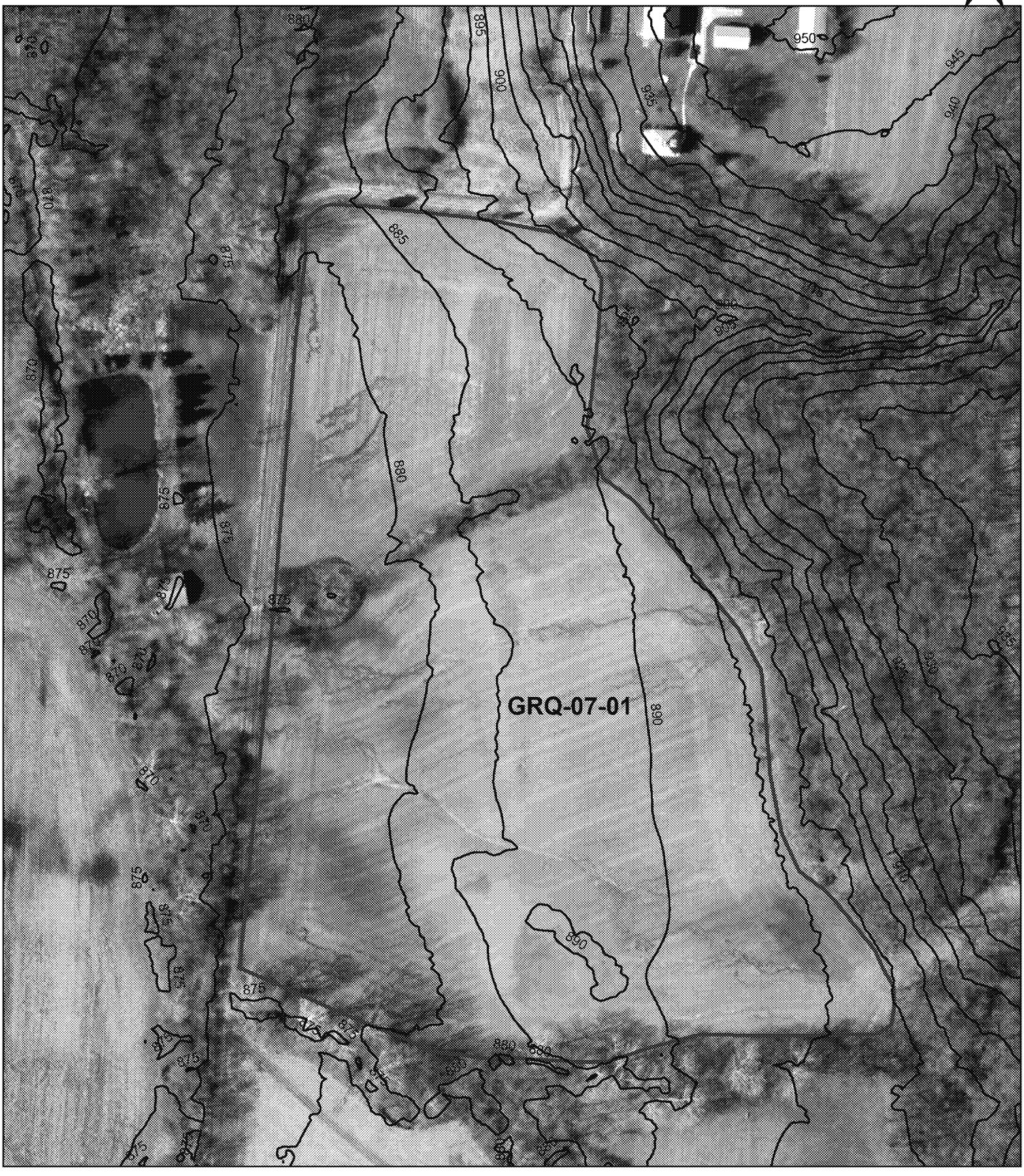
quasar energy group

GRQ-07-01
Total Acreage: 13.4 Acres

N



0 75 150 300 Feet

5ft Contours

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Custom Soil Resource Report
Soil Map

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Greene County, Ohio
Survey Area Data: Version 11, Sep 18, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 6, 2012—Mar 10, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Greene County, Ohio (OH057)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
EmB	Eldean silt loam, 2 to 6 percent slopes	1.9	17.0%
MUF	Milton soils, channery variant, 25 to 50 percent slopes	0.0	0.3%
Ws	Westland silty clay loam	9.4	82.7%
Totals for Area of Interest		**11.4**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If

Custom Soil Resource Report
Map—Depth to Any Soil Restrictive Layer (GRQ-07-01)

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Soil Rating Lines

- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Soil Rating Points

- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Water Features

Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

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This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Greene County, Ohio
Survey Area Data: Version 11, Sep 18, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 6, 2012—Mar 10, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Depth to Any Soil Restrictive Layer (GRQ-07-01)

Depth to Any Soil Restrictive Layer— Summary by Map Unit — Greene County, Ohio (OH057)				
Map unit symbol	**Map unit name**	**Rating (centimeters)**	**Acres in AOI**	**Percent of AOI**
EmB	Eldean silt loam, 2 to 6 percent slopes	>200	1.9	17.0%
MUF	Milton soils, channery variant, 25 to 50 percent slopes	76	0.0	0.3%
Ws	Westland silty clay loam	>200	9.4	82.7%
Totals for Area of Interest			**11.4**	**100.0%**

Rating Options—Depth to Any Soil Restrictive Layer (GRQ-07-01)

Units of Measure: centimeters

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Interpret Nulls as Zero: No

Hydrologic Soil Group (GRQ-07-01)

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Custom Soil Resource Report
Map—Hydrologic Soil Group (GRQ-07-01)

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

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Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

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This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Greene County, Ohio
Survey Area Data: Version 11, Sep 18, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 6, 2012—Mar 10, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydrologic Soil Group (GRQ-07-01)

Hydrologic Soil Group— Summary by Map Unit — Greene County, Ohio (OH057)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
EmB	Eldean silt loam, 2 to 6 percent slopes	B	1.9	17.0%
MUF	Milton soils, channery variant, 25 to 50 percent slopes	C	0.0	0.3%
Ws	Westland silty clay loam	C/D	9.4	82.7%
Totals for Area of Interest			**11.4**	**100.0%**

Rating Options—Hydrologic Soil Group (GRQ-07-01)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Precision Partners

Soil Test Results

ADVANCED AG SOLUTIONS www.AdvancedAgSolutions.com

Prepared For: Pitstick, Tom
Farm: [redacted]
Field:
Crop Zone:
Crop Year: 2013
Acres: 0.00

County: Greene, OH
Twp Rng Sec:
Directions:

Layer Name: Soil Test 2013

Date Sampled: February 26, 2013

SampleID	LabID	OM	P	K	Mg	Ca	CEC	pH	BpH	Ca %	Mg %	K %	Su	Bo	Zn	Mn	Fe	Cu
	none	%	ppm	ppm	ppm	ppm	meq/100g	unit	unit	%	%	%	ppm	ppm	ppm	ppm	ppm	ppm
1	E40306	2.5	7	102	416	23170	18.3	7.7		82.1	16.7	1.2						
2	E40307	4.0	3	34	488	30970	18.7	7.8		80.4	19.2	0.4						
3	E40308	2.2	5	79	370	19900	17.9	7.8		83.9	15.2	1.0						
4	E40309	3.3	5	109	282	17850	17.3	7.8		86.7	12.0	1.4						
Average:		3.0	5	81	389	22973	18.1	7.8		83.3	15.8	1.0						

Form BUA-2

Owner Consent for Beneficial Use

Exemption 6

Certification Statement

1. I agree to allow biosolids generated by the treatment plant identified on Form BUA-1 to be beneficially used on my property at agronomic rates.

2. I agree to allow federal, state and local regulatory staff access to the beneficial use site for the purposes of inspecting and authorizing the beneficial use site, beneficially using biosolids, and collecting and analyzing samples from the beneficial use site. I reserve the right to ask the above parties for proper identification at any time.

3. I certify that I am holder of legal title to the property described on application form BUA-4, or am authorized by the holder to give consent for the land application of biosolids, and that there are no restrictions to the granting of consent under this form.

Exemption 6 _____ 2/25/15
Date

In the event the owner of the beneficial use site changes, Form BUA-2 must be revised and resubmitted to Ohio EPA.

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OhioEPA
Ohio Environmental Protection Agency
Division of Surface Water

Beneficial Use Site Information

Ohio EPA Site I.D. (Ohio EPA Use Only)

Field site I.D.: GRQ-08-01

Beneficial use site location: 0.6 miles W of Black Ln, 0.3 miles N of Yellow Spring Fairfield Rd

County: Greene	**Township**: Bath
Latitude: 39°49'39.84"N	**Longitude**: 83°58'42.95"W

Total acreage proposed for beneficial use: 34.6

Type of beneficial use to be performed:

Surface application ☐
Injection or immediate incorporation ■

Ground slope percent:

Less than 15%	■	15% to 19.9%	■
Greater than 20%	☐		

Soil pH (s.u): 7.8

Bedrock depth (feet): >3ft

Soil phosphorus (mg/kg): 5.0

Bray Kurtz P1 ☐
Mehlich 3 ■

Type of crops to be grown:

Crop Type	Expected Yield
Corn	180 bu/ac
Soybeans	60 bu/ac
Wheat	
Pasture	
Hay	
Other:	

Soil Types:

Soil Unit Symbol	Soil Unit Name	Hydrologic Soil Group	Flooding Frequency Class
CcD2	Casco-Eldean loams, 12-18% Slopes, moderately eroded	B	None
EmB	Eldean silt loam, 2-6% slopes	B	None
EmB2	Eldean silt loam, 2-6% slopes, moderately eroded	B	None
MtB	Milton silt loam, 2-6% slopes	C	None
OcA	Ockley silt loam, Southern Ohio Till Plain, 0-2% slopes	B	None
RbA	Randolph silt loam, 0-2% slopes	C/D	None
SlA	Sleeth silt loam, 0-2% slopes	B/D	None

Division of Surface Water
Application for Authorization: Class B Beneficial Use Sites

Ohio EPA Application for Authorization (1/15) **Form BUA-5**

Applicable isolation distances:

Type of Isolation Distance			
Surface waters of the state	■	Sinkhole/UIC class V drainage	☐
Occupied building	■	Private potable water source	☐
Medical care facility	☐		

Are any endangered species or endangered species habitats located on the beneficial use site?

☐ Yes	■ No

If "Yes" is marked, list the types of endangered species or endangered species habitat:

Have biosolids been beneficially used on the site since July 20, 1993?

☐ Yes	■ No

If "Yes" is marked, list the biosolids generators and years beneficial use occurred:

Generator	NPDES permit No.	Year of Beneficial Use

The application must also include all of the following:

- ■ A soil map of the proposed beneficial use site.
- ■ A frequency flood class map of the proposed beneficial use site.
- ■ An aerial map of the proposed beneficial use site that clearly identifies the entrance of the beneficial use site from the nearest road and all applicable isolation distances as established in Chapter 3745-40 of the Ohio Administrative Code.
- ■ A vicinity road map at or near the township level that clearly identifies the proposed beneficial use site with all roads labeled.
- ■ A copy of the most recent soil test results identified in this form.

GRQ-08-01
Total Acreage: 34.6 Acres

0 150 300 600 Feet

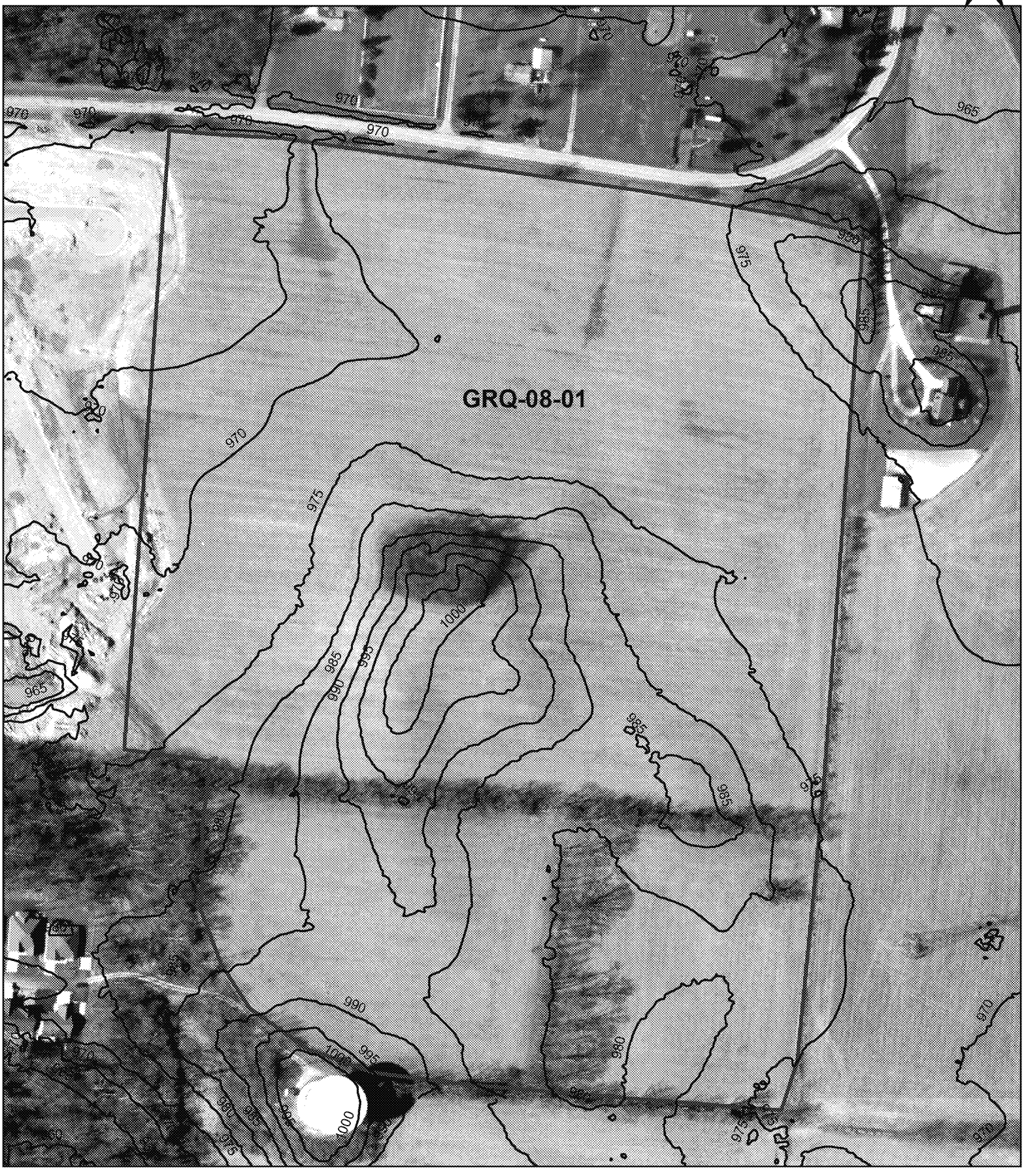
33ft Water Buffer
MtB Soil Exclusion
MtB Soil Exclusion
Care Facility
1500ft Facility Buffer
Residences
100ft Res Buffer
300ft Res Buffer

ED_014244A_00000141-00025

quasar energy group

GRQ-08-01
Total Acreage: 34.6 Acres

N



0 150 300 600 Feet

5ft Contours

ED_014244A_00000141-00026

Custom Soil Resource Report
Soil Map

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

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Soil Survey Area: Greene County, Ohio
Survey Area Data: Version 11, Sep 18, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 6, 2012—Mar 10, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Greene County, Ohio (OH057)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
CcD2	Casco-Eldean loams, 12 to 18 percent slopes, moderately eroded	8.6	22.5%
EmB	Eldean silt loam, 2 to 6 percent slopes	3.0	8.0%
EmB2	Eldean silt loam, 2 to 6 percent slopes, moderately eroded	4.0	10.6%
EmC2	Eldean silt loam, 6 to 12 percent slopes, moderately eroded	3.3	8.6%
MtB	Milton silt loam, 2 to 6 percent slopes	3.7	9.6%
OcA	Ockley silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes	5.2	13.6%
RbA	Randolph silt loam, 0 to 2 percent slopes	10.2	26.8%
SlA	Sleeth silt loam, 0 to 2 percent slopes	0.1	0.4%
Totals for Area of Interest		**38.2**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used.

Custom Soil Resource Report
Map—Depth to Any Soil Restrictive Layer (GRQ-01-08)

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Soil Rating Lines

- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Soil Rating Points

- 0 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- > 200
- Not rated or not available

Water Features

Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Greene County, Ohio
Survey Area Data: Version 11, Sep 18, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 6, 2012—Mar 10, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Depth to Any Soil Restrictive Layer (GRQ-01-08)

Depth to Any Soil Restrictive Layer— Summary by Map Unit — Greene County, Ohio (OH057)				
Map unit symbol	**Map unit name**	**Rating (centimeters)**	**Acres in AOI**	**Percent of AOI**
CcD2	Casco-Eldean loams, 12 to 18 percent slopes, moderately eroded	51	8.6	22.5%
EmB	Eldean silt loam, 2 to 6 percent slopes	>200	3.0	8.0%
EmB2	Eldean silt loam, 2 to 6 percent slopes, moderately eroded	>200	4.0	10.6%
EmC2	Eldean silt loam, 6 to 12 percent slopes, moderately eroded	>200	3.3	8.6%
MtB	Milton silt loam, 2 to 6 percent slopes	76	3.7	9.6%
OcA	Ockley silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes	163	5.2	13.6%
RbA	Randolph silt loam, 0 to 2 percent slopes	94	10.2	26.8%
SlA	Sleeth silt loam, 0 to 2 percent slopes	>200	0.1	0.4%
Totals for Area of Interest			**38.2**	**100.0%**

Rating Options—Depth to Any Soil Restrictive Layer (GRQ-01-08)

Units of Measure: centimeters

Aggregation Method: Dominant Component

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Interpret Nulls as Zero: No

Hydrologic Soil Group (GRQ-01-08)

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Custom Soil Resource Report
Map—Hydrologic Soil Group (GRQ-01-08)

Map Scale: 1:2,930 if printed on A portrait (8.5" x 11") sheet.

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

N

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Greene County, Ohio
Survey Area Data: Version 11, Sep 18, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 6, 2012—Mar 10, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Table—Hydrologic Soil Group (GRQ-01-08)

Hydrologic Soil Group— Summary by Map Unit — Greene County, Ohio (OH057)				
Map unit symbol	**Map unit name**	**Rating**	**Acres in AOI**	**Percent of AOI**
CcD2	Casco-Eldean loams, 12 to 18 percent slopes, moderately eroded	B	8.6	22.5%
EmB	Eldean silt loam, 2 to 6 percent slopes	B	3.0	8.0%
EmB2	Eldean silt loam, 2 to 6 percent slopes, moderately eroded	B	4.0	10.6%
EmC2	Eldean silt loam, 6 to 12 percent slopes, moderately eroded	B	3.3	8.6%
MtB	Milton silt loam, 2 to 6 percent slopes	C	3.7	9.6%
OcA	Ockley silt loam, Southern Ohio Till Plain, 0 to 2 percent slopes	B	5.2	13.6%
RbA	Randolph silt loam, 0 to 2 percent slopes	C/D	10.2	26.8%
SlA	Sleeth silt loam, 0 to 2 percent slopes	B/D	0.1	0.4%
Totals for Area of Interest			**38.2**	**100.0%**

Rating Options—Hydrologic Soil Group (GRQ-01-08)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Soil Analysis Report

Spectrum Analytic
1087 Jamison Road NW
Washington Court House, OH 43160-8748
www.spectrumanalytic.com

Report To	Prepared For	
THOMPSONS PRECISION PARTNERS 6344 PAULLIN RD JAMESTOWN, OH 45335	THOMPSON TOM PITSTICK	Sampled 03-15-2013 Tested 03-26-2013

Sample Number	Lab Number	pH		Organic Matter	Analysis Result* and Rating				CEC	Base Saturation			Mehlich-3 PPM and Rating						
		Soil pH	Buffer pH	%	Phosphorus P	Potassium K	Magnesium Mg	Calcium Ca		K %	Mg %	Ca %	Sulfur S	Boron B	Zinc Zn	Iron Fe	Copper Cu	Mang. Mn	Alum. Al
OMNICO OM 47-1	E40310	6.6	6.9	1.2	11 L	68 L	153 M	2712 H	14.3	1.0	7.8	71.1							
OMNICO OM 47-2	E40311	5.9	6.4	1.3	11 L	96 M	183 M	1244 M	13.4	1.5	10.0	34.8							
OMNICO OM 47-3	E40312	6.4	6.9	1.4	8 L	97 M	371 H	1439 G	9.5	2.2	28.6	56.6							
OMNICO OM 47-4	E40313	5.5	6.4	2.0	23 M	127 M	161 M	917 M	12.1	2.3	9.8	28.4							
OMNICO OM 47-5	E40314	5.6	6.7	1.6	12 L	68 L	198 G	1028 M	9.1	1.6	16.0	42.6							
OMNICO OM 47-6	E40315	5.5	6.8	1.6	9 L	103 M	186 G	961 G	7.6	2.9	18.0	47.5							
OMNICO OM 47-7	E40316	7.8		2.2	9 L	139 M	653 V	2949 G	16.1	1.9	29.7	68.5							
OMNICO OM 47-8	E40317	7.6		2.6	5 L	136 M	835 V	2320 G	15.1	1.9	40.5	57.6							
OMNICO OM 47-9	E40318	5.8	6.6	1.6	8 L	124 M	222 G	945 M	10.2	2.6	15.9	34.6							
OMNICO OM 47-10	E40319	5.4	6.6	1.2	18 L	104 M	98 M	656 M	8.2	2.7	8.8	30.0							
OMNICO OM 47-11	E40320	5.4	5.9	1.6	26 M	171 M	88 L	758 L	17.1	2.2	3.8	16.7							
OMNICO OM 47-12	E40322	4.9	6.4	1.1	22 L	125 M	76 M	515 L	10.0	2.7	5.6	19.4							
OMNICO OM 47-13	E40323	4.9	6.5	1.8	18 L	127 M	84 M	572 M	9.0	3.0	6.8	23.7							

* *Results: P, K, Mg and Ca are extracted by Mehlich-3 (ICP) and are reported in ppm*
Ratings: L=Low M=Medium G=Good H=High V=Very High